

9.8

Statistics and Data (Algebraic)

Parameters and Statistics:

The various numbers that are associated with a data set are called statistics.

Gathering numerical information is often called descriptive statistics.

Parameters deal with whole population.

Statistics deal with Samples and then use the science of inferential statistics to make inferences about the parameters.

Mean, Median and Mode:

Mean

The mean of a list of n numbers $\{X_1, \dots, X_n\}$ is

$$\bar{X} = \frac{X_1 + \dots + X_n}{n} = \frac{1}{n} \sum_{i=1}^n X_i.$$

Ex. Find the mean of the list of test scores $\{68, 73, 95, 85, 83, 90\}$.

$$\bar{X} = \frac{68+73+95+85+83+90}{6} = \frac{494}{6} = 82.3$$

Median

The median of a list of n numbers $\{X_1, \dots, X_n\}$ arranged in order is

- the middle number if n is odd, and
- the mean of the two middle numbers if n is even.

Ex. Find the median of the list of test scores {68, 73, 95, 85, 83, 90}.

68, 73, 83, 85, 90, 95 there are 6 numbers so we need to find the mean of the two middle numbers 83 and 85, which is 84.

Mode

The mode of a list of numbers is the number that appears most frequently in the list.

Ex. Find the mode for the list of test scores {68, 73, 95, 85, 83, 90}.

There is no number that appears most so there is no mode here.

Show how to use calc. to find stats. Use Example 10 pg. 779.

1. Press STAT
2. Edit, then type in your list of data under L1
3. Go back to STAT, CALC, 1-Var Stats, then press enter
4. The info given is the mean, the sum of the data, Standard deviations, the number of terms in your data set, minimum value, 1st quartile value, Median, 3rd quartile value, and maximum value.

